

**ABSTRACT**

Systems and methods are provided for a trellis interleaver and feedback precoder. One such method includes: producing a series of precoder symbols; interleaving the precoder symbols; producing a trellis state output from the interleaved symbols; and generating a redundant bit based upon the trellis state output. One such system includes: a precoder state element configured to monitor a precoder state and to develop a series of precoder symbols; an interleaver configured to receive and interleave the precoder symbols; a trellis state element configured to receive the interleaved symbols and to develop a trellis state output; and a trellis encoder configured to receive the trellis state output and to generate at least one redundant bit.